SIGMOIDOSCOPIC EVALUATION OF PATIENTS WITH BLEEDING PER RECTUM

THESIS

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C E R T I F I C A T E

This is to certify that the work entitled "SIGMOIDOSCOPIC EVALUATION OF PATIENTS WITH BLEEDING PER RECTUM" has been carried out by DR. ANIL GANJU himself in the department of Surgery, M.L.B. Medical College, Jhansi.

He has put in the necessary stay in the department as per regulations of Bundelkhand University, Jhansi.

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C E R T I F I C A T E

This is to certify that the work entitled "SIGMOIDOSCOPIC EVALUATION OF PATIENTS WITH BLEEDING PER RECTUM" which is being submitted as a thesis for M.S.(Surgery) was carried out by Dr. ANIL GANJU under my personal supervision and guidance.

The technique and methods described were undertaken by the candidate himself and the observations recorded were periodically checked by me.

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C E R T I F I C A T E

Certified that the present research work entitled "SIGMOIDOSCOPIC EVALUATION OF PATIENTS WITH BLEEDING PER RECTUM" has been conducted by DR. ANIL GANJU under my guidance and supervision.

The techniques and statistics mentioned in the thesis were actually undertaken by the candidate himself.

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Dated : 12th June, 1991.

(Amit Ganju)

C O N T E N T S

AIMS OF STUDY

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1. To evaluate the prevalence of various lower gastro-intestinal diseases presenting as bleeding per rectum present beyond the reach of proctoscope.

2. To assess the diagnostic efficacy of rigid sigmoidoscope as a first line procedure.

INTRODUCTION

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There has been deep quest in the minds of persons associated with medical sciences to directly visualise pathologies lying inside the body. This has led to the invention of ENDOSCOPES.

By the application of highly developed techniques medical science has achieved considerable results in diagnosing morphological and functional changes in the diseased organs. The physicians however cannot help feeling that each new technical achievement in the field of practical medicine provides an impulse liable to divert the practitioner from classical methods of diagnosis. Some procedures are put to one side and new ones brought in and modifications are made to improve the technique as well as the equipment.

The starting point from which to identify an illness is, even to-day, the method of inspection, palpation, percussion and auscultation. In addition to clinical diagnosis, technical achievement should be employed to complete the basic procedure.

The decade of the 1940's saw a major diagnostic revolution in gastro-enterology with the advent of modern scanning techniques and endoscopes.

The 1980's are seeing the refinement and increasingly widespread use of gastro-intestinal endoscopes for diagnosis as well as treatment. Sigmoidoscope is one of the tools in the armamentarium (Paulson, 1930). The arrival of this instrument has brought revolution in the diagnostic as well as therapeutic procedures of colorectal diseases.

The complaint of passage of blood mixed stools or frank bleeding per rectum have been one of the commonest complaint, which one comes across while dealing with patients in the out door patients department. Majority of these patients turn up at surgical out door patients' department. In some of these patients diagnosis is not a problem and is easily ascertained by simple history and examination and specific treatment can be rendered to such patients.

In some patients with such complaints, diagnosis cannot be settled by mere history and examination using even the proctoscope. The reason being that the pathology is beyond the reach of the surgeon. These patients hitherto were treated emperically by non-specific drugs, the reason being lack of facilities that would visualise the pathology beyond the reach of normal means. Sigmoidoscope has made it easy.

The prime purpose of undertaking sigmoidoscopy is direct visualisation of structures which could not be approached with normal inspection or proctoscopy in order to detect presence or absence of tissue changes by inspection of gross anatomy and if needed biopsy may be taken of the most suggestive area of involvement.

It is a important and routine investigation which can be made with a minimum of discomfort to the patient (Paulson, 1930; Mannstrach, 1964).

The aetiology of lower gastro-intestinal bleeding especially those causes which come within the reach of the sigmoidoscope, can be divided into two groups :

a. Anal and rectal lesions.

b. Colonic lesions.

A. <u>ANAL AND RECTAL LESIONS</u>

Small amount of bright red blood on the surface of the stools and toilet tissue is often due to haemorrhoids. Such bleeding is generally precipitated by the strained passage of hard stools. Anal fissure and fistula may present in a similar fashion. Proctitis is another source of rectal bleeding. It is frequently seen in young adults, especially in male homosexuals. In the latter situation, proctitis may be non specific

or due to gonococcal infection. Rectal trauma may also cause haematochezia and the placement of foreign body in the rectal Vault may precipitate perforation as well as acute rectal bleeding.

B. COLONIC LESIONS

It is a well known fact that most of the diseases and lesions of the large bowel involve the left side of the colon. Carcinoma of colon as well as colonic polyps may produce chronic blood loss. Frank bloody diarrhoea is common and may be the presenting symptom in patients with ulcerative colitis. It is less frequent in granulomatous colitis, but the occult blood may be seen in the stools.

Bleeding may also accompany diarrhoea due to infections such as shigellosis, amoebiasis, campylobacteriosis and rarely salmonellosis. In elderly patients ischaemic colitis may be a cause of bloody diarrhoea. This lesion may also be seen in the younger age group associated with the use of oral contraceptives agents. Angiodysplastic lesions usually involving the ascending colon can be a major source of bleeding.

Skilled emergency sigmoidoscopy can identify the source of haemorrhage in ward patients and provide

a method for control by snare polypectomy and electrocoagulation (Hunt and Waye, 1981).

Sigmoidoscopy is a safe method for diagnosing and even taking biopsies whenever necessary in colorectal problems with bleeding with little trouble to the patient under direct vision. Therefore, the present study is an attempt to evaluate the patients with bleeding per rectum sigmoidoscopically and to select the best possible approach to treat the underlying pathology.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

In the early centuries of civilisation students of human anatomy and disease devised methods to project their curious, if not scientific vision beyond the orifices of the body cavities. It is recorded that the ancient HEBREWS evolved a practical speculum for examination of the vaginal canal and the ruins of pompeii revealed that a technique of anorectal examination utilising an expanding type of anal speculum was employed even in those days.

Medical literature reveals that interest in the study of inner recesses of the human body did not abate. Through the years, the curious were relentless in their investigations into the internal regions of less accessible cavities. However, it was not untill 1805 that Phillip Bozzini of Frankfurt invented an instrument to project the light of a candle through a double lumen urethral cannula for inspection of the inner surfaces of the urethra and bladder. The only reward for this investigator's unusual curiosity was a reprimand from the faculty of the medical academy in Vienna.

Satisfactory inspection of cavities with small orifices required inventive assistance to make possible the introduction of a source of light. During the

following 75 years numerous unsuccessful attempts were made by many scientists and technicians to perfect an instrument for adequate telescopic examination. Development of incandescent light in 1880 made possible the modern lighted telescopes, which has since been developed to such a high degree of excellence.

The era of internal illumination of the body cavities began in 1878 with the introduction of the cystoscope by Max Nitze.

Edison (1880) invented the incandescent lamp and Newmann (1883) described an instrument using the incandescent lamp as a light source.

At the end of nineteenth century cavity endoscopic procedures such as cystoscopy, bronchoscopy etc. were well established and in daily use.

The quest of the clinicians to look inside the anus during the above era of endoscopy led to the birth of sigmoidoscope.

The sigmoidoscope has become one of the important tools of this armamentarium (Paulson, 1930).

Sigmoidoscopy is the single most important diagnostic method for the patients with colonic diseases (Isselbacher and Richter, 1963). This holds

very much true for the colonic cancers. The authenticity of the above finding can be justified by the fact that :

a. Approximately 50% of the large bowel malignancies are within the reach of sigmoidoscope.
b. Small rectosigmoidal tumors may be missed on examination after a barium enema because of tortuosity and redundancy of the intestine in this area.

It's diagnostic superiority has also helped in determining the cause of unexplained rectal bleeding (Gainford, 1978 and Teague, 1978).

Of the 215 patients in whom sigmoidoscopy was successfully performed by Teague et al (1978), the probable or definite cause of the bleeding was identified in 89(41%). This included 27 patients i.e. 13% with a carcinoma, 29(14%) with colonic polyps and 16(7%) with previously undiagnosed inflammatory bowel disease. 196 patients i.e. 91% presented with frank rectal bleeding and only 19 patients i.e. 9 percent were investigated because of positive faecal occult blood.

If all the patients with suspected colonic lesions were subjected to sigmoidoscopy on the first physicians'visit, the earlier diagnosis of these lesions would almost certainly improve the long term outlook for colonic cancer.

Donald et al (1985) found a total of 516 abnormalities to account for symptoms in 506 patients giving a diagnostic rate of 35 percent. The most common lesions were piles (307 cases. Other relatively common disorders included inflammatory bowel diseases(107 cases) (7.3%), Benign tumors (44 cases) and malignant tumors (38 cases). 33 patients with a rectal carcinoma subsequently under went surgery, the tumors being staged by Dukes classification, 9 were stage A (27%), 8(24%) stage B and 16(49%) stage C. The other abnormalities included angiodysplasia (8), solitary rectal ulcer (6) and fissure (4) Radiation colitis (1) and thread worm(1).

Sigmoidoscopic and radiologic studies of the bowel are most important in establishing the diagnosis of inflammatory bowel diseases of the large intestine (Metri et al, 1980). Sigmoidoscopy must be performed in all patients presenting with chronic diarrhoea and in all instances of rectal bleeding, while barium enema examination of the perfectly prepared colon may disclose the earliest changes of mucosa in ulcerative colitis (Zijlstra, 1982).

A conventional barium enema is often normal in early disease. The goal of sigmoidoscopy is to establish whether mucosal inflammation is present and not necessarily to determine it's full extent at the initial

examination.

Thus if sigmoidoscopic changes are encountered within the first 8-10 cm, it is not necessary to pass the instrument to it's full length which may cause discomfort when bowel is acutely inflammed(Robert-Glickman, 1987).

Bolt (1970) has reported that routine sigmoidoscopic examination resulted in discovery of single or multiple polyps in 9.6 percent and asymptomatic cancer in only 0.2 percent of patients, examined.

In a series of 14,370 routine initial examinations, Gilbertsen (1968) reported the findings of 20 carcinomas or 1 in 712. Other studies have confirmed the findings of 1-3 cancers per 1000 routine examinations (Bohlman et al, 1977).

Only 12 to 13 percent of tumours of colon and rectum are within the reach of examining finger. If 20 cm of colon and rectum can be visualised with sigmoidoscope, 65 percent of all tumours of the colon and rectum can be seen and if only 15 cm can be visualised 50 percent of all tumours of the colon and rectum can be brought into view.

Leffall (1974) and Rossato et al (1981) also emphasized that roughtly half of all colorectal carcinomas are found within the reach of the rigid

sigmoidoscope. A further quarter occur below the mid descending colon and may therefore be detailed by fibreoptic sigmoidoscopy (Marks et al, 1979).

All agree, however, that sigmoidoscopy is indicated in any patient with symptomatology referable to colon and rectum especially and highly significant bleeding per rectum. Other authors, because of mounting evidence for a polyp cancer relationship, hold the merit of routine sigmoidoscopic examination in screening for carcinoma of the colon. They base this judgement on the high incidence of carcinoma and on the potential for complete cure if diagnosed very early when only mucosal involvement is evident. Proponents of this view argue that :

1. Benign polyps are common found in patients with carcinoma of the colon.
2. Carcinoma is sometimes seen in continuity with benign tissue within a polyp.
3. One occasionally discovers minute cancer in a patient with non-inflammatory intestinal diseases.
4. Hereditary multiple adenomatous colonic polyps carry nearly 100 percent risk of carcinoma.
5. Larger the size of the polyp, the more likely it will be cancerous.

The wide spread application of rigid sigmoidoscopy and paine-taking work of Morson (1976) and others (Lane et al, 1979) have identified the importance of adenomatous polyp in the genesis of colorectal cancer. Mass screening studies using the rigid sigmoidoscope have shown that the removal of all asymptomatous polyps found at routine sigmoidoscopy will result in both, a decline in the incidence of rectal cancer and improved survival of those who develop malignancy. Patients in whom colorectal cancer has been detected at an asymptomatic stage have been reported to have survival rate as high as 90 percent at 15 years (Hertz, 1979).

Further-more one study by Crespi et al (1979) has suggested that the removal of polyps can reduce the incidence of carcinoma of colon.

Lipshutz et al (1979) and other supporters of routine sigmoidoscopic screening of asymptomatic patients concluded that it is justified despite objections to the poor cost benefit ratio in diagnosing large bowel cancer.

Corman et al (1975) have recommended that sigmoidoscopy should be performed annually for any patient who had a history of rectal polyps or carcinoma.

For patients 50 years or older, sigmoidoscopy

should be performed routinely every two years in accordance with the data presented by Spratt (1970), who stated that doubling time for carcinomas of colon is in excess of 600 days, thus implying that routine annual examinations are not indicated.

Wolff and Shinya (1974) have also advocated for earlier detection of cancer of colon through endoscopy.

On the other hand there are chances when lesion can be missed on sigmoidoscopy. There were 94 cases of polypoid colonic lesions from a study of Rosece E Miller (1975), where sigmoidoscopy failed to identify any of these polyps even though the sigmoidoscope was at or beyond the site of the lesions. Twenty five of the lesions were carcinomas. Histologic proof of each lesion was obtained by repeat sigmoidoscopy with biopsy, polypectomy or surgery.

Incomplete examination obviously accounts for the failure to identify colonic lesion by sigmoidoscopy in many cases. The reported false negative error rate for polypoid lesions has ranged from 3 to 22 percent with an average of 12 percent (Leinick et al, 1977 and Abrahams, 1982).

The greatest assets of sigmoidoscopy are there of combined biopsy and polypectomy with minimal additional time, cost and patients' risk.

Sigmoidoscopy also fails occasionally to detect carcinomas of colon with an error rate reported as high as 10 percent (Abrams, 1982).

Two recent reports showed approximately 17 percent sigmoidoscopies fail to visualise colonic malignancies(Obrecht et al, 1984 and Benner et al,1983).

The various results reported for the radiologic detection of colonic lesions particularly polyps is mainly dependent upon the competence of the radiologists involved. The similar dependence upon examiner competency during sigmoidoscopy has not received equal attention even though marked variability in training and experience is evident among clinicians currently performing sigmoidoscopy, implying that the results of this technique are likely to be at least as variable as those reported for the radiologic examinations (Marx et al, 1982 and Overholt, 1984).

Hughes (1957) stated that 25 percent of sigmoidoscopies fail to go to the full length of 25 cm which Jackman (1958) quotes 14.8 percent of failure in 19,294 examinations at the Mayo Clinic in 1955. The average length of insertion achieved by Rohlman (1977) was 20.4 cm. In 62 percent of all the cases, he could pass full 25 cm of the instrument.

The recent introduction of fibreoptic sigmoidoscopy is a helpful diagnostic addition in the detection of cancer of colon (Simon, 1980). However, the expense of this examination is far greater than that of a barium enema and the numbers of instrument available as well as of skilled physician to use them, it quite limited.

Leister et al (1982) claimed the flexible sigmoidoscopy as an out patient procedure. Reynolds (1983) has also shown it's efficacy and simplicity of use of outpatients departments.

In the last decade, there has been lot of comparative studies claiming the superiorities of fibreoptic sigmoidoscopy over the rigid sigmoidoscopy (Vellacott et al; 1982; Katan et al, 1979; Brown,1984; Rodney, 1986; Vellacott et al, 1981, Rehlman et al,1977).

The superiority has been because of it's more reach and high ability of manipulation. It has got a great role in the diagnostic evaluation of pediatric age patients with colonic problems(Euler et al, 1981).

Mitri et al (1980) has used for the diagnosis of inflammatory pathologies of large bowel.

Donald et al (1985) showed the feasibility of offering an open access sigmoidoscopy services to general practitioners and insisting on a

sigmoidoscopy before a barium enema.

Many patients with inflammatory bowel diseases are most of the time not referred to the gastroenterology clinic. It is presumed that they were mild cases and were managed by general practitioner.

The incidence of inflammatory bowel disease was perhaps high, however, amounting to 102 cases/10^5 population/year. This compares with the estimated incidence of ulcerative colitis in Britain of 7.2 cases/10^5/year (Morris et al, 1968-77) and rectal Crohn's disease of 1.0 cases/10^5/year (Kyle et al, 1980 and Harries et al, 1982).

It has been observed that offering a rapid open access services of this type has not resulted in more clear evidence for detection of colonic carcinoma at an early stage. An alternative approach has been the wide spread use of occult blood testing. In patients with symptoms a yield for carcinoma of 4.6 percent has been reported (Leicester et al, 1983). Unfortunately that approach still resulted in detection of only 11 percent of malignant tumours in Dukes stage A and or false negative rate for rectal carcinoma of 45.4 percent (Leicester et al, 1983). Hence possibly

a combination of sigmoidoscopy and occult blood testing will produce the best early detection rate for colorectal carcinoma.

There are advantages to the use of rigid sigmoidoscopy particularly at first examination. It is far quicker, can usually be carried out without bowel preparation and much larger biopsy specimens can be obtained. Inspection of the bowel stool without prior bowel preparations can also be of considerable value in that it may show blood streaking indicating a source of bleeding from a higher level or have the typical appearance associated with steatorrhoea or irritable bowel syndrome. Sometimes worms can be seen inside the bowel. Scrappings can also be taken which can show the cysts of protozoans parasites.

In certain instances of where the mesenteric occlusion is suggested, the diagnosis may be made or enhanced by sigmoidoscopy (Carter, Vanix, Hinshaw and Stafford, 1939; and Littman, Daley and Schwartz,1963).

More accurate bacteriologic and parasitologic determinations are possible when smears are prepared and media inoculated promptly at table with the help of sigmoidoscope(Paulsen, 1930; Paulsen & Andrews, 1927).

Sigmoidoscopy has been also found to be

helpful in releasing large bowel obstruction (Thow and Jackman, 1963) and in the reduction of sigmoid volvulus (O'Connor, 1979).

Riggen and Arafa (1930) demonstrated the schistosomial rectal lesions with the help of sigmoidoscope.

The sigmoidoscopy has gained so much popularity due to it's reliability in the diagnosis that periodic health examinations and cancer detection surveys are considered incomplete without proctosigmoidoscopy (Crumpacker and Backer, 1961; Wessler, 1967).

LIMITATIONS OF THE PROCEDURE

The limitations of sigmoidoscopy regardless of age, concern the restricted extent of direct visualisation. Nicholas (1962) has studied the extent of the examination by rigid sigmoidoscope.

Rectum is 12.5 (5") cm long, the sigmoid colon varies in length and position. In a complete examination in a non redundant sigmoid colon, the most that can be seen in 25-30 cm (10"-12") from the anus i.e. the rectum, rectosigmoid and lower sigmoid In a redundant sigmoid colon, the instrument is threaded into loops, so that as much as 40cm may be

inspected with 25 cm (10") sigmoidoscope fully inserted. In complete passage of the entire length of sigmoidoscope, a rigid instrument occurs in 15% of cases (Jonas Gummer and Jones, 1963).

Sigmoidoscopy has more limitations (Marks,1974 and Stevenson, 1980). The examiner is unable to negotiate extremely acute bends and lesions may not be reached. Blind areas encountered most frequently are in rectosigmoid colon. Fixation and constriction of the colon from adhesions, inflammation, neoplasms and diverticula limit the skill of examiner.

The standard 25 cm rigid sigmoidoscope has been used in the evaluation of colorectal diseases for decades (Browne and Mc Hardy, 1948).

Inspite of it's unquestionable value in the evaluation of patients with colonic problems serious limitations of this rigid instrument is that the average sigmoidoscopist inspects primarily the distal 15 to 18 cm of the colon (Madigan and Halls, 1968). Diverticular disease, strictures, localised inflammatory bowel diseases, polyps and colon carcinomas often occur more proximally in the colon, just beyond the reach of the rigid instrument. Previous studies indicated that perhaps 70 percent of colon cancers were located in the

distal 25 cm of the bowel and should be seen by this instrument (Welt, 1971). Recent data however, suggest a major change in the distributions with a greater number of lesions above the level of rectosigmoid (Waldwain et al, 1962; Artell et al, 1966; Wolff and Shinya, 1974; Salmon et al, 1971; Koyama, 1974, Bohlman and Smith, 1976 and Berg and Howell, 1974.

COMPLICATIONS

In 1974, American Society of Gastro-intestinal endoscopy (ASGE) survey of complications relating to diagnostic sigmoidoscopy showed a morbidity of 0.32 percent and mortality of 0.008 percent (Rogers et al, 1975). In the more recent ASGE survey of 700 diagnostic sigmoidoscopies, the reported complications and fatality rates were 1.7 percent and 0.1 percent respectively (Gilbert et al, 1983). Apparently greater experience and improvement in instrumentation has not reduced the risk of sigmoidoscopy.

By far the most significant complication from sigmoidoscopic examination of the recto sigmoid is that of perforation (Andersen , 1947). Welt (1971) has reported that perforation can be expected in from 0.002 to 0.07 percent of patients and that death resulting from the procedure in the asymptomatic individual should approach zero.

Others reported less frequent complications from proctо-sigmoidoscopic examination and have been listed by Weiss (1972). They included cardiac arrest secondary to vaso-vagal reflex, post instrumentation and post biopsy bleedings, bacteraemia(Hatton et al, 1981). Rodriquin et al (1984) reported enterococcal endocarditis following sigmoidoscopy. Explosion of bowel gas where fulgurating current has been used without suction or without proper bowel preparation, fainting episodes secondary to vasomotor collapse, perforation by the sigmoidoscope and perforation due to preparatory cleaning or due to electrosurgery.

MATERIAL AND METHODS

MATERIAL AND METHOD

The present study was conducted in Maharani Laxmi Bai Medical College, Hospital, Jhansi on the patients who attended the surgical or medical out door patients departments and also on those who were admitted in the wards of this hospital. The patients included in the study had the common chief complaint of passage of blood per rectum besides the other symptoms. The study was conducted during the period from April, 1990 to April, 1991.

Every case was subjected to thorough and relevant history taking. A complete clinical examination was done with especial emphasis on the examination of abdomen. Patients were also subjected to investigations including total leucocyte count, differential leucocyte count, haemoglobin, urine examination. Stool examination was also done for the search of ova and cysts and also for some abnormal cells. Whenever it was possible a rectal or colonic biopsy was also taken.

Barium enema was done after sigmoidoscopy in few cases having symptoms suggestive of surgical disease and in patients who showed evidence of cancer or polyp on sigmoidoscopy. In those cases where diagnosis was not ascertained on sigmoidoscopy, they were also subjected to barium enema examinations.

In the cases where biopsy was taken barium enema was not done for ten days to avoid the chances of colonic perforation (Nicholls, 1977).

Sigmoidoscopy was performed without bowel preparation with laxative or by washouts. In few cases bowel preparation was done before the sigmoidoscopy. Indeed it is very desirable that the inspection should be carried out without any preparation. Purgation may make the examination impossible by filling the rectum with liquid faeces. Lavage may wash away a tell-tale fleck of blood or mucous which may be the only evidence of disease higher up in the bowel and it causes a general hyperaemia, so that the normal vascular pattern cannot be seen. Sometimes it was not possible to get a complete view on the first occasion. In these cases the examination was repeated after defecation (Jones, 1968).

The following equipments were used and were every time conveniently laid on the trolly in the examination room.

1. A couch.
2. Small round bag.
3. Flat pillow.
4. Rubber or plastic sheet to cover the bed clothes.

5. Rubber gloves and disposable finger stalls.
6. Rigid sigmoidoscope with obturator, bellows, eye piece and light fitting.
7. Battery or transformer.
8. Biopsy forceps.
9. Lubricant (Xylocain hydrochloride 2% jelly).
10. Gauzes of appropriate size for cleaning inside of the sigmoidoscope. Brush can also be used for this purpose.
11. Tray.
12. Dry swabs.
13. Formaline vials for biopsies.

TYPE OF THE INSTRUMENT

Rigid sigmoidoscope (Lloyd Davis type) having diameter of 1.5 cm. and length of 25 cm was used. With this small bore instrument discomfort to the patient was minimal and examination to 25 cm was possible without difficulty in most of the cases.

POSITION OF THE PATIENT

The following positions were used :

A. Left lateral (Sims).
B. Jack knife position.
C. Knee chest.

The left lateral position(sims position) was used most often during sigmoidoscopy. The four essential features of left lateral position are :

1. Long axis of patients trunk is at 45° to long axis of couch.
2. Feet level with far edge of the couch.
3. Buttocks raised on sand bag/pillow or folded towel.
4. Buttocks extending about 10 cm beyond the near edge of the couch.

The other two positions are less comfortable and may require special tables.

Sigmoidoscopy under anaesthesia is less safe than when patients is conscious and can co-operate. The order of examination was :

a. Inspection.
b. Palpation.
c. Sigmoidoscopy.

Prior to performing the procedure the indication and the purpose was explained. Also a digital examination of the rectum and anal canal were necessary to ensure that there were no lesions in the anus or the rectum, which may interfere with the sigmoidoscopy or get traumatised during the procedure.

PASSAGE OF THE INSTRUMENT

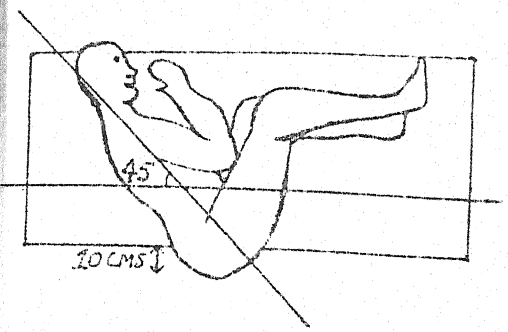
- Patient was kept in left lateral position as mentioned earlier.
- The instrument was lubricated well with 2% xylocain hydrochloride jelly.
- The instrument was passed gently with the tip towards the umbilicus of the patient. A fall in resistance indicates that the tip has entered the rectum.
- The obturator was now removed and the eye piece, light and bellows were attached to the instrument.
- The examination was always carried out under direct vision without blind advancement with just sufficient air insufflated by the bellows to keep the rectal walls apart.
- The instrument was angled backwards along the sacral curve, past the valves of Houston until the recto-sigmoid junction was reached (At about 15 cm from the anal verge).

The instrument was then advanced anteriorly and to the left into the sigmoid colon. Passage through recto-sigmoid junction may cause discomfort to the patient. Force should never be applied.

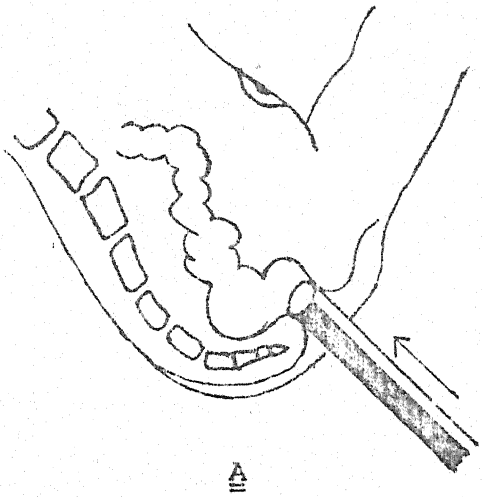
- The instrument was withdrawn slowly inspecting all parts of the bowel mucosa and taking care to examine behind folds where lesions such as polyps may be hidden.

The normal mucosa is pale pink with visible submucosal vessels (vascular pattern). Friability of mucous folds was judged by applying gentle pressure with the sigmoidoscope. Beside this following things were also looked for, abnormal faeces, blood, pus, mucous, worms in the lumen, focal mucosal lesions like polyps, carcinoma, ulcers and diffusion lesions of the bowel like inflammation.

- Before the sigmoidoscope was withdrawn from the rectum the observation glass was removed to allow the air to escape.
- The total distance to which the sigmoidoscope was passed was recorded as well as the distance of any abnormality from the anal verge, its site, extent both proximal and circumferential were also recorded.
- If biopsy was taken, it was taken after the removal of the eye piece using large, cusp forceps. Biopsy site was properly inspected for the evidence of active bleeding.



Position for Sigmoidoscopy; plain view of patient on examination couch, with buttocks projecting 10 cms beyond the edge on the examiner's side.



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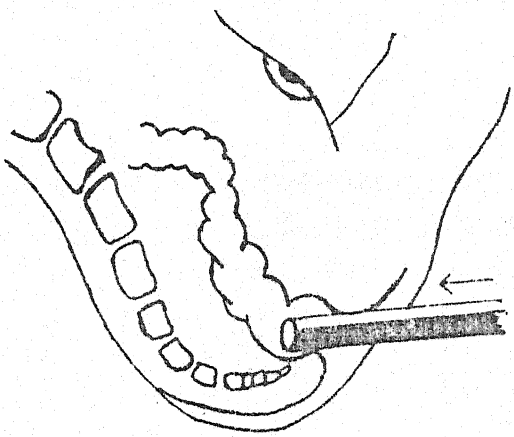

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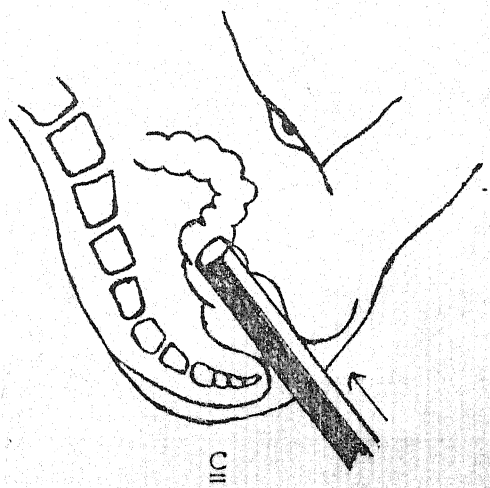
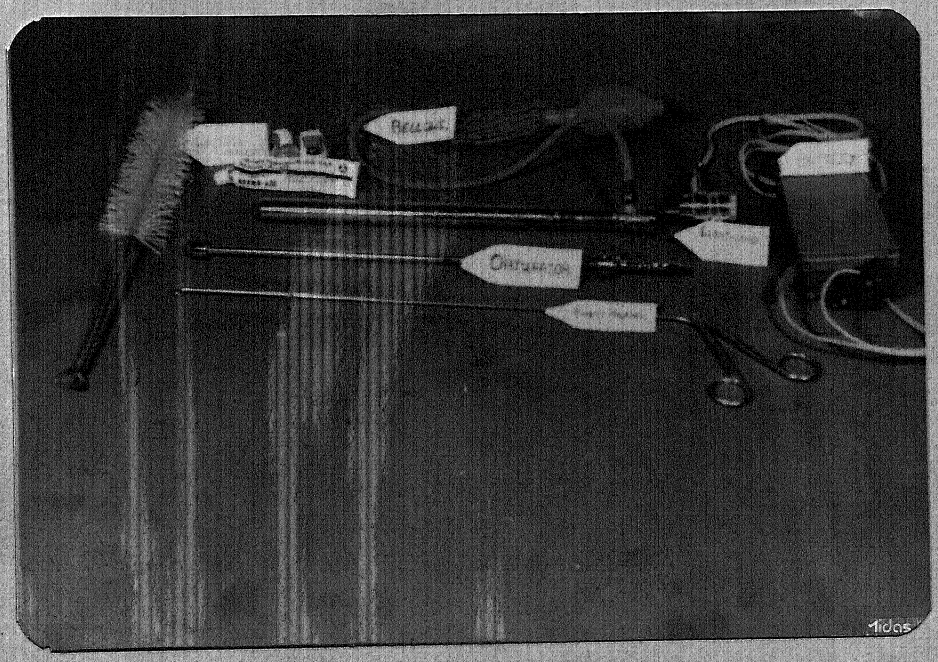


C

Sigmoidoscopy : The sequence of angles through which the instrument is advanced under direct vision and with the help of air insufflation.



SIGMOIDOSCOPE WITH ACCESSORIES

OBSERVATIONS

OBSERVATIONS

The present study was conducted at Maharani Laxmi Bai Medical College and Hospital, Jhansi in the department of Surgery during the period of April,1990 to May, 1991.

The study group consisted of 54 symptomatic patients with complaints of bleeding per rectum in whom cause could not be ascertained by routine methods like proctoscopy.

TABLE I

Distribution of patients with complaints of bleeding per rectum.

Total No.of patients attended department of surgery	No.of patients with chief complaint of bleeding per rectum	Percentage
21660	2628	12.13

Table I shows the percentage of the total number of patients attending out door patients department having the chief complaint of bleeding per rectum. 21660 patients attended the out patients department during the period extending from April,1990 to May, 1991. Out of these, 2628 (12.13%) patients had the problem of bleeding per rectum, what so ever the cause.

TABLE XX

Distribution of patients whose cause of bleeding could not be known in preliminary examination.

Total No. of patients with bleeding per rectum	No. of patients in whom cause of bleeding could not be known.	Percentage
2628	106	4.03

Table IX shows that in 106(4.03%) cases out of the total of 2628 cases with complaint of passage of blood per rectum, the cause could not be ascertained by clinical examination, inspection and proctoscopy. These were the cases who were advised sigmoidoscopy.

TABLE XXI

Distribution of patients according to sex.

Sex	No.of patients	Percentage
Male	61	57.54
Female	45	42.46
TOTAL	106	100.00

Out of a total of 106 cases, who were advised sigmoidoscopy to determine the cause of unknown rectal bleeding, 61 (57.54%) cases were males and remaining 45(42.46%) cases were females.

TABLE IV

Number of patients who turned up for sigmoidoscopy

No.of patients who were advised sigmoidoscopy	Sigmoido-scopy done	Perce-ntage
106	52	49.05

The patient compliance was low (49.05%) as 52 cases out of 106 cases who were advised sigmoido-scopy turned up for the examination to determine the cause of bleeding.

TABLE V

Sex and age distribution of different subgroups of patients with unknown bleeding per rectum.

Age group (years)	Males		Females		Total	
	No.	%	No.	%	No.	%
0 - 10	3	4.91	1	2.22	4	3.77
11 - 20	10	16.39	4	8.88	14	13.20
21 - 30	10	16.39	8	17.77	18	16.98
31 - 40	13	21.13	11	24.44	24	22.64
41 - 50	8	13.11	8	17.77	16	15.09
51 - 60	17	27.86	13	28.88	30	28.30
61 - 70	-	-	-	-	-	-
TOTAL	61	100.00	45	100.00	106	100.00

Table V shows distribution of patients according to their sex and age. Maximum number -30 (28.30%) cases belonged to the age group 51-60 years. 24(22.64%) cases were found in group 31-40 years of age, while 18(16.98%) cases were belonging to age group of 21-30 years. 4(3.77%) cases in the age group of 0-10 years had complaint of bleeding per rectum, while 14(13.20%) from group 11-20 years had such complaint. 16(15.09%) cases belonging to 41-50 years of age group were examined. The maximum number of male patients 17(27.86%) belonged to group of 51-60 years where as maximum females patients too belonged to this age group i.e. 29.86%. The minimum number of male and female cases belonged to age group of 0-10 years - male cases 3(4.91%) and females 1 (2.22%).

TABLE VI

Total diagnostic yield by sigmoidoscopy.

Total No. of cases	Diagnosis confirmed		Diagnosis not made	
	No.of cases	Percentage	No.of cases	Percentage
52	37	71.15	15	28.84

The total diagnostic yield of rigid sigmoidoscope for lower gastro-intestinal pathologies presenting

with the chief symptom of bleeding per rectum is given in table VI. A total of 52 cases were examined sigmoidoscopically for rectal bleeding whose cause had not been determined. The probable or definite source of the bleeding was diagnosed in 37(71.15%) cases. The remainder 15(28.84%) cases had various other lesions which could not be detected by sigmoidoscope.

TABLE VII

Distribution of cases according to various causes of unknown bleeding per rectum found sigmoidoscopically.

Sl. No.	Disease group	No. of cases	Percentage
1.	Ulcerative colitis	14	26.92
2.	Colonic malignancy	14	26.92
3.	Amoebic colitis	6	11.53
4.	Bacillary dysentry	-	-
5.	Sigmoid diverticulae	-	-
6.	Post irradiation colitis	-	-
7.	Polyps	3	5.76
8.	Cause could not be known sigmoidoscopically.	15	28.84
	TOTAL	52	100.00

Table VII shows the sigmoidoscopic diagnosis of various causes of bleeding per rectum in the study

group of 52 patients. The maximum number of patients i.e. 14(26.92%) each had either malignancy or ulcerative colitis as the cause of bleeding. Amoebic colitis was found to be responsible for the passage of blood mixed stools in 6(11.53%) cases. Polyps as the cause of bleeding per rectum were found in 3(5.76%) cases while in a total of 15(28.84%) cases, cause of bleeding was not determined. No other lesion responsible for lower gastro-intestinal bleeding was discovered on sigmoidoscopy.

TABLE VIII

Sex distribution of different lower gastrointestinal lesions presenting with bleeding per rectum.

Disease group	TOTAL	Male		Female	
		No.	%	No.	%
Ulcerative colitis	14	8	23.52	6	33.33
Colonic malignancy	14	11	32.35	3	16.67
Amoebic colitis	6	4	11.76	2	11.11
Bacillary dysentry	-	-	-	-	-
Sigmoid diverticulum	-	-	-	-	-
Post irradiation colitis	-	-	-	-	-
Polyps	3	3	8.82	-	-
Cause could not be known sigmoidoscopically.	15	8	23.52	7	38.88
TOTAL	52	34	100.00	18	100.00

Table VIII depicts the sex distribution of different lower gastro-intestinal lesion presenting with bleeding as their main symptom. Out of the total of 52 patients 34(65.38%) were males and 18(34.61%) were females. The ulcerative colitis had fairly equal incidence in both the sexes(8, 23.52% in males and 6, 33.33% in females).

The colonic malignancy was found to be in 11 male patients (32.35%) and in 3(16.67%) of female cases. Four(11.76%) male patients had amoebic colitis as the cause of blood mixed stools while 2(11.11%) female patients had amoebic colitis. All the 3(8.82%) cases of polyps were male children. In 8(23.52%) male patients and 7(38.88%) female patients cause of bleeding was not explained on sigmoidoscopy.

The maximum number of cases of ulcerative colitis belonged to age group 11-20, 5(37.71%) cases followed by 4(28.57%) cases from age group of 31-40 years. 3(21.42%) cases were from age group 21-30 years while 2(14.28%) cases belonged to age group 41-50 years (Table IX).

The highest incidence of colonic malignancy 8(57.14%) cases was in the age group of 51-60 years followed by 3(21.42%) cases each from age groups 31-40 and 41-50 years. Out of total 6 cases of amoebic

TOTAL IX

Age distribution in different disease groups.

Sl. No.	Disease groups	Age groups (years)							Total
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	
1.	Ulcerative colitis	-	5	3	4	2	-	-	14
2.	Colonic malignancy	-	-	-	3	3	8	-	14
3.	Amoebic colitis	-	-	3	3	-	-	-	6
4.	Bacillary dysentry	-	-	-	-	-	-	-	-
5.	Sigmoid diverticulae	-	-	-	-	-	-	-	-
6.	Polyps	3	-	-	-	-	-	-	3
7.	Post irradiation colitis	-	-	-	-	-	-	-	-
8.	Cause could not be known sigmoidoscopically	-	-	-	3	3	9	-	15
	TOTAL	3	5	6	13	8	17	-	52

colitis 3(50%) cases belonged to age group of 21-30 years while other 3(50%) cases belonged to age group 31-40 years. All the 3 cases of polyps belonged to the age group 0-10 years.

TABLE X

Intubation distance reached by rigid sigmoidoscope.

Sl. No.	Distance from anal verge(cm)	No.of cases	Percentage
1.	≤ 15	4	7.69
2.	Upto 20	12	22.64
3.	Upto 25	29	55.76
4.	Upto 30	7	13.46

Intubation data (Table X) shows that the rigid sigmoidoscope was passed upto 25 cm in most of 29(55.76%) cases and upto 20 cm in 12(22.64%) cases. A distance of upto 30 cm was visualised in 7(13.46%) cases while in 4(7.69%) cases the sigmoidoscope was put upto 15 cm.

The table XI shows the sigmoidoscopic and pathological findings of patients with amoebic colitis. There was loss of vascular pattern with at places mucosal hyperaemia. Ulcers with normal intervening

mucosa were also seen. The mucus exudate after scrapping showed cyst for E. hystolytica.

TABLE XI

Sigmoidoscopy and pathological findings in cases with amoebic colitis.

Sigmoidoscopy		Pathology	
Description	Extend	Stool	Biopsy
Loss of vascular pattern with mucosal hyperaemia At placed decreate round ulcers with normal mucosa intervening.	Rectum and sigmoid colon	Mucus exudate showed cyst of E. hystolytica.	-

TABLE XII

Sigmoidoscopic and pathological findings in patients with ulcerative colitis.

	Sigmoidoscopic		No.of	Pathologic
	Description	Extent	cases	biopsy
A.	Loss of vascular pattern friable mucosa patchy areas of spontaneous haemorrhage. descrete ulcers are present. Intervening mucosa is inflamed with flecks of fresh blood mixed with mucous	Rectum and sigmoid	5	Colonic mucosal gland are within normal limit. Inter glandular tissues showed dense mononuclear infiltration with fair no. of plasma cells.
B.	Generalised oedematous mucosa with mucosal friability. No descrete ulcers.	Rectum and sigmoid colon.	9	Colonic mucosal glands showed slight hyperplasia with fair no. of plasma cells.

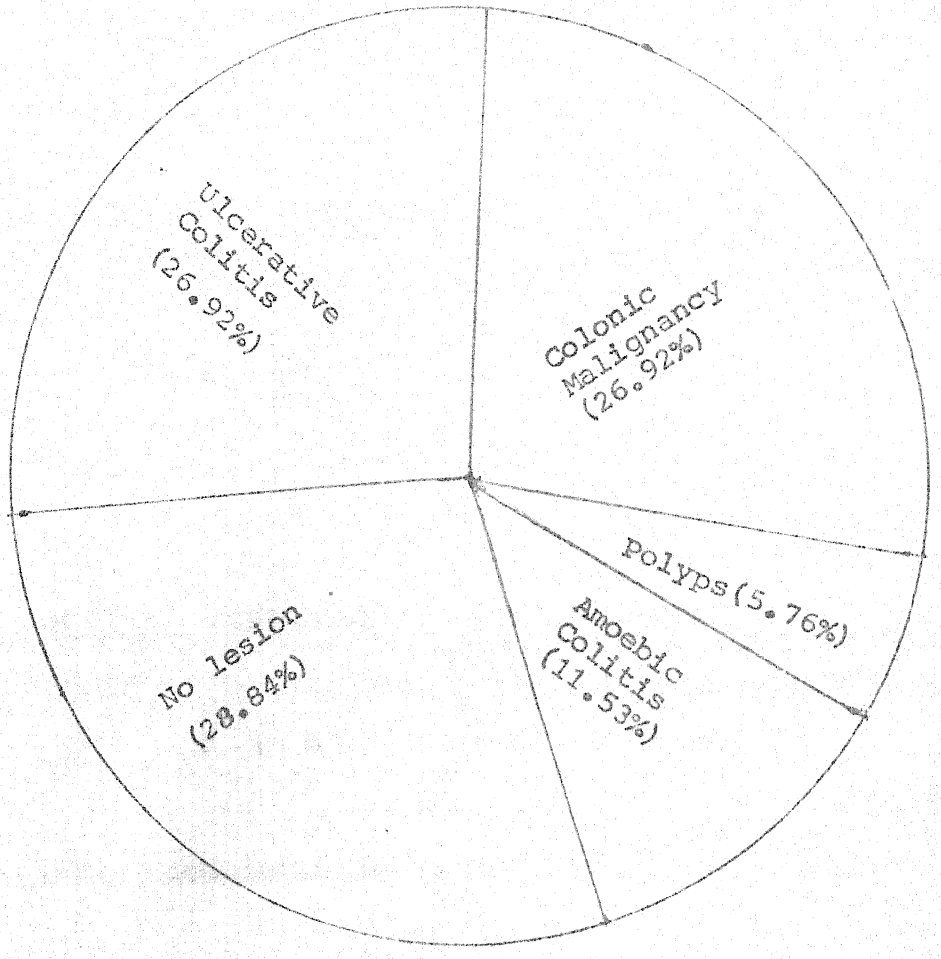
Table XII shows sigmoidoscopic and pathologic findings in 14 patients with ulcerative colitis. In all 10 colonic biopsies presence of fair no. of plasma cells was seen which was diagnostic of ulcerative colitis. Stool examination showed pus cells and plenty of RBCs in most of these cases.

TABLE XIII

Sigmoidoscopic and pathologic findings in patients with colonic malignancies.

Sigmoidoscopic		Pathological	
Description	Extent	No.of cases	Biopsy
Irregular greyish cauliflower growth present at 15 cm from the anal verge. Multiple haemorrhagic points were seen.	Sigmoid colon	2	Mucoid Adeno CA
Greyish white irregular growth present 12 cm from anal verge involving posterolateral part of colon and extending to rectosigmoid junction Bleeds on pressure.	Sigmoid and upper rectum	12	Adeno CA

Sigmoidoscopic and pathological findings in 14 patients with colonic malignancies are shown in table XIII. Stool examination had shown the fair number of RBCs in all the 14 cases.



Pie Diagram showing Sigmoidoscopic distribution of different colorectal diseases.

D I S C U S S I O N

DISCUSSION

A surgeon has to some times face the dilemma when he has to establish a diagnosis when other preliminary diagnostic modalities of lesser magnitude have been unproductive and indecisive in cases of patients with lower gastro-intestinal pathologies presenting as bleeding per rectum.

Sigmoidoscopy has historically been extremely valuable diagnostic tool in the study of colonic diseases. Since the barium enema provides an examination beyond the capability to sigmoidoscopy but the sigmoidoscopy could be used directly to examine the more difficult areas of radiologic evaluation, the two techniques were obviously found complementary (Miller, 1932). In the present study barium enema was also performed in some cases. Sigmoidoscopy has its advantages and disadvantages. Unfortunately, the procedure is not 100 percent accurate.

Accurate assessment of the extent, progression of diseases and the need to obtain a tissue diagnosis is important for proper planning of therapy and evaluation of effectiveness. Sigmoidoscopy has large part to play in this role.

Several studies have compared the sensitivity and specificity of the radiologic and sigmoidoscopic examinations of the lower gastro-intestinal tract and have emphasized the fallibility and complementary nature of the two investigations (Saunder et al. 1971 and Wolff et al. 1975).

In the present study 52 cases were evaluated with chief symptom of fresh bleeding per rectum or passage of blood mixed stools, in whom diagnosis was not established by the preliminary examination with proctoscopic. 37(71.15%) cases showed abnormal sigmoidoscopic findings, while the rest 15(28.84%) cases were found normal on sigmoidoscopy. The cause of symptoms in these 15 cases was beyond the reach of the sigmoidoscopy. In some of these cases barium enema was performed while other were subjected to exploratory laprotomy.

Out of the 37 cases in whom sigmoidoscopically some lower gastro-intestinal lesion was found, 14 (26.92%) cases were of colonic malignancy. Majority of these cases were males, 11(78.5%) and in the age group of 51-60 years (8, 57.14%).

There were 14(26.92%) cases of ulcerative colitis. 5 cases had moderately severe disease and

the rest 9(64.28%) cases had moderate disease on sigmoidoscopy. Some of the moderately severe cases had involvement upto splenic flexure on barium enema examination.

Majority of cases of ulcerative colitis were males (8, 57.14%) and belonged to age group of 11-20 years (5, 35.71%) and 31-40 years (4, 28.57%). There were 6 cases of amoebic colitis and they belonged to age group 21-30 years (3, 50%) and 31-40 years (3, 50%). Out of the total cases of amoebic colitis 4(66.67%) cases were males.

There were total 3(5.76%) cases of polyps and all were males and belonged to age group of 0-10 years.

In the present study, the sigmoidoscopy was undoubtedly better as a first line of investigation in the detection of lower colonic diseases presenting with bleeding. The total diagnostic yield of sigmoidoscopy was significantly good (37/52, 71.15%). No patient sustained a major complication and none required urgent treatment. This confirms the safety of the procedure which is consistent with studies of Gelfand (1980) and Abrams (1982).

Hughes (1957) stated that 25% sigmoidoscopies fail to to to the full length of 25 cm, while Jackman (1958) quoted 14.8% of failure. In contrast to these studies full insertion upto 25 cm failed in 23.07% of our examinations. Included in this, 3 cases were less than 10 years of age. Sigmoidoscope was passed to full length of 25 cm in 29(55.76%) cases of our study group. The average distance achieved in our study with rigid sigmoidoscope was 23.82 cm. In the study by Leicester et al (1982) the average distance to which rigid sigmoidoscope was inserted was 17.7±4.9 cms.

Studies from various regions suggested that the incidence of ulcerative colitis was rising before 1960 Sedlac et al (1972) in Minnesota USA - 7.2%, Evans et al (1965) Oxford U.K. - 6.5%. It has been steady over the past 20 years Gilat et al (1974) Tetaviv-Israel 3.6%, Sonnenive et al(1968) Cophagen-Denmark - 7.3%, Binder et al - Denmark - 8.1%.

Two recent studies from United Kingdom (Sinclair et al, 1980 and Devlin et al, 1980) are exceptional and showed a very high incidence and rising trend of ulcerative colitis 11.3% and 15.1% respectively.

In all the above studies the incidence of ulcerative colitis was determined in the patients presenting with any of the gastro-intestinal symptoms. In our study we had done sigmoidoscopy only in those patients who had bleeding as one of their chief complaints. The incidence of ulcerative colitis in our study group is 14-52 (26.92%). In the study of Teague et al (1978) the ulcerative colitis was found in 16 out of 65 cases of bleeding per rectum(18.82%).

The diagnostic yield from rigid sigmoidoscope for carcinoma of sigmoid colon in symptomatic patients had been reported as 4.6% (Leicester et al, 1983).

Vellacott et al (1982) reported incidence to be 2.3%. These incidences were reported from group as a whole presenting with any symptoms. In our study there were 14 cases of malignancies out of a total of 52 cases presenting with bleeding per rectum(26.92%). In the Teague et al (1978) the incidence was 27/89 (30.33%). Our study is consistent with the findings of Teague et al (1978).

Screening for colonic carcinoma by stool occult blood testing has a sensitivity of 75% (Hardcastle et al, 1983). In this present study it was as high as 100%. Hence a combination of

sigmoidoscopy and stool occult blood testing will produce the best detection rate for colonic carcinoma.

It has been emphasised by several authors that 75% of all colorectal carcinoma are found within the reach of rigid sigmoidoscopy(Le Fall, 1974; Rosato et al, 1981), while in the present study it has been seen that all 14 cases who presented with bleeding per rectum were within the reach of sigmoidoscope i.e. 100%.

Taylor et al (1967) contended that patients with colonic carcinoma above 15 cm whose conditions were diagnosed using flexible sigmoidoscope, should prior to surgical resection undergo rigid sigmoidoscopy to rule out a more distant lesion missed by the flexible instrument. They base their contention on their clinical experience with two patients each of whom had distal colon carcinoma that were missed by flexible sigmoidoscopy and subsequently seen by rigid sigmoidoscopy. They suggested that rigid instrument may be better able to detect such lesions because of the straightened configuration that bowel is forced to assume.

The advantage of taking biopsy specimens for histological examinations is a strong argument in favour of the sigmoidoscopic technique(Williams, 1984). In our

study all the cases who were diagnosed to be malignancy came out to be same on histological examination.

It has been demonstrated in our study that the patient with rectal bleeding may be adequately investigated by sigmoidoscopy. It has been seen that onset of the lesions of the lower gastro-intestinal tract especially sigmoid colon and rectum have bleeding one of their earliest and the important symptoms i.e. in cases of ulcerative colitis the symptoms of rectal bleeding is seen in 55% of cases. (Peete and Ashiston, 1972) besides the other symptoms like diarrhoea, abdominal pain, weight loss, tenesmus etc. The sigmoidoscopy would lead to early detection of the lesion and thus helping in the institution of early treatment to achieve better prognosis.

We have discussed the value of sigmoidoscopy in making the positive diagnosis in with bleeding per rectum who had negative response from preliminary investigation and even from radiological procedures. However, we feel that it serves an equally important function in helping to exclude serious colonic lesions. This enables us to reassure patient with frank rectal bleeding to redirect diagnostic effort away from the colon.

C O N C L U S I O N

CONCLUSIONS

Fifty two cases with the chief complaint of bleeding per rectum were evaluated sigmoidoscopically because in these patients the causes of bleeding per rectum were not determined by simple diagnostic tools like proctoscope. The results obtained were as follows:

- In about 4 percent of patients with complaint of bleeding per rectum, lesions were beyond the reach of proctoscope.
- Sigmoidoscopy has been found to be safe, simple, cheap and quick procedure and it can usually be carried out without prior bowel preparation in any clinic. No complications of technique were seen in the present series.
- The sigmoidoscopy showed a better diagnostic yield (71%) than the barium enema.
- Among the different lower gastrointestinal diseases presenting with bleeding per rectum, colonic malignancy and ulcerative colitis are quite common in this part of the country which can be well interpreted by the observation that 27% each of all cases undergoing sigmoidoscopy in the present study had colonic malignancy and ulcerative colitis.

- We did find age and sex predilection of colonic malignancy, which was found to be more common in males (32%), with age group 51-60 years.
- Ulcerative colitis showed highest incidence in 2nd and 3rd decade but did not show any marked sex predilection.
- Inflammatory bowel disease in early stages can quickly be recognised by sigmoidoscope.
- In the present study it had been seen that the patients who present with loose stools mixed with blood or frank bleeding per rectum or having occult blood positive in stools, if subjected to sigmoidoscopy lead to early detection of malignancy, which is amenable to surgical treatment.
- In 28% cases the cause of the bleeding per rectum was not determined on rigid sigmoidoscopy that means lesions where beyond the reach of the sigmoidoscope and requires further evaluation by other means.
- The present study showed the feasibility of sigmoidoscopy as first line procedure without barium enema study in the lower gastrointestinal diseases presenting with bleeding per rectum.

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APPENDIX

APPENDIX

WORKING PROFORMA

Sl. No.

Name of patient : Age/Sex:

Son/Daughter/Wife of :

Address : Vill.
Post Office
Thana
District
State

Religion : Hindu/Muslim/Sikh/Christian/Others

Family income : a. ₹1000 b. ₹2000 c. ₹2000
(monthly)

Dietary History :

a. Purely vegetarian

b. Predominantly vegetarian

c. Predominantly nonvegetarian

d. Purely non vegetarian

Family History of bleeding per rectum : a. Positive
b. Negative

Complaints Duration

A. Bleeding per rectum

1. Colour
2. Amount
3. Separate or mixed with stool
4. Associated with pain around anus (Painful defecation)

5. Loose motion
6. Pain in abdomen
7. Distention of abdomen
8. Vomiting
9. Something coming out of anus

B. Other complaints : Fever, Weight loss etc.

PAST HISTORY OF SIMILAR COMPLAINTS WITH DURATION (IF ANY)

A. General examination

1. G.C.
2. P/R
3. R/R
4. B.P.
5. Pallor
6. Lymphadenopathy
7. Icterus
8. Hydration
9. Cyanosis
10. Clubbing
11. Any other finding

B. Systemic Examination

1. Respiratory system
2. Cardio Respiratory system
3. Per abdomen
   i. For distention, tenderness, lump etc.
   ii. Per rectal examination
      a. Inspection
      b. Palpation
   iii. Proctoscopic examination

C. Sigmoidoscopic examination

1. Pain during introduction of instrument.
2. Extend to which instrument could be placed.
3. Mucosa - i. Colour
   - ii. Friability
   - iii. Continuity
   - iv. Presence of mucous
   - v. Any other special features.
4. Growth(if any) with description
   - i. Size
   - ii. Shape
   - iii. Extend
   - iv. Surface
   - v. Surround mucosa
5. Any other feature to be described

INVESTIGATIONS

1. Blood routine
   - a. Haemogram
   - b. Blood sugar
   - c. Blood urea
2. Urine routine & microscopic
   - a. Macroscopic
   - b. Microscopic
   - c. Culture

3. Stool examination

4. Biopsy

DIAGNOSIS

TREATMENT

FOLLOW UP